

IN THE CLAIMS:

Please amend claims 1, 5, 8, 10, 11, 13, 18 and 20-23; and

Please add new claims 24-26 as follows.

1. (Currently Amended) An apparatus, comprising:

at least one camera directed toward a user's face and configured to record at least two still image of a user from at least first and second angles of view and to obtain at least on still image of the user's face; and

~~a memory configured to store user profile information relating to authorized users of a system; and~~

a processor connected to said at least one camera, configured to process the still images obtained by said at least one camera and to generate a 3-dimensional model of the user's face and to generate a facial texture bit map of the user's face using the at least one still image of the user's face, and to compare the generated model and the facial texture bit map with the stored user profile information to determine whether the user is authorized to access the system, said processor comprising an access device configured to grant access to the system when the generated model and the facial texture bit map matches the profile information of one of the authorized users stored in ~~the~~ a memory, thereby indicating recognition and authorization of the user, and an updater configured to update the profile information of the one of the authorized users with the generated model after each grant of access by said access device such that the updated profile information

comprises an average of the generated model and the previously stored profile information.

2. (Previously Presented) The apparatus of claim 1, further comprising a light source to project light at the user's face.

3. (Previously Presented) The apparatus of claim 2, wherein said light source projects structured light onto the user's face to facilitate the generation of the 3-dimensional model.

4. (Previously Presented) The apparatus of claim 1, wherein said at least one camera comprises a digital camera.

5. (Currently Amended) The apparatus of claim 1, wherein said memory comprises at least one ~~selected from a group consisting~~ of RAM, ROM, EPROM and a magnetic storage media.

6. (Previously Presented) The apparatus of claim 1, wherein said processor comprises a computer, said memory being contained within said computer.

7. (Previously Presented) The apparatus of claim 1, wherein said at least one camera is configured to obtain a 2-dimensional still image of the user's face, wherein the obtained 2-dimensional still image of the user's face is used to determine the user's facial texture, the determined facial texture being used in conjunction with the generated 3-dimensional model to determine whether the user is authorized to access the system.

8. (Currently Amended) The apparatus of claim 3, wherein said light source comprises at least one ~~selected from a group consisting~~ of white light, Laser light and infrared light.

9. (Previously Presented) The apparatus of claim 1, wherein said apparatus is a mobile telephone.

10. (Currently Amended) The apparatus of claim 1, wherein said apparatus ~~is~~ operatively further comprising:

a transmitter configured to transmit the images to a server over a network and to receive a 3-dimensional model and a facial texture bit map from the server.

11. (Currently Amended) The apparatus of claim 1, further comprising:
a determiner configured to determine an orientation of the apparatus to determine an angle between said at least first and second angles of view.

12. (Previously Presented) The apparatus of claim 1, wherein said at least one camera comprises first and second cameras, said first camera configured to record at least one still image of the user from at least the first angle of view and said second camera configured to record at least one still image of the user from at least the second angle of view.

13. (Currently Amended) An apparatus, comprising:
at least one charged coupled camera configured to obtain at least two still images of a user's face from at least two different predetermined angles of view and to obtain at least one still image of the user's face; and

~~a memory configured to store user profile information relating to authorized users of a system; and~~

a processor configured to connect to said at least one charge coupled camera and said light source to generate a 3-dimensional model of the user's face using the at least two still images, and to generate a facial texture bit map of the user's face using the at least one still image, said processor is configured to compare the 3-dimensional model and the facial texture bit map to the stored user profile information contained in ~~said~~ a memory and to access the system when the generated 3-dimensional model and facial texture bit map match a user profile stored in said memory.

14. (Previously Presented) The apparatus of claim 13, further comprising a light source to project structured light on the user's face to obtain said at least two still images of the user's face.

15. (Previously Presented) The apparatus of claim 13, wherein said apparatus is a mobile telephone.

16. (Previously Presented) The apparatus of claim 13, wherein said apparatus is operatively configured to transmit the images to a server over a network and receive a 3-dimensional model and a facial texture bit map from the server.

17. (Previously Presented) A method, comprising:
obtaining, by a mobile apparatus, at least two 2-dimensional still images of a user from at least two different angles of view;

sending the images to a server over a network;

generating, by the server, a 3-dimensional model of a user's face from the obtained images;

determining, by the server, the user's facial shape using the generated 3-dimensional model;

sending the 3-dimensional model and the user's facial shape to the mobile apparatus;

comparing, at the mobile apparatus, the determined facial shape with profile information stored in memory, the profile information comprising data relating to the facial shape of authorized users; and

determining, at the mobile apparatus whether the determined facial shape matches the profile information stored in the memory.

18. (Currently Amended) The method of claim 17, wherein the mobile apparatus is a mobile telephone.

19. (Previously Presented) The apparatus of claim 1, wherein said at least one camera comprises a charged couple device (CCD) camera.

20. (Currently Amended) An apparatus, comprising:
obtaining means for obtaining at least two still images of a user's face from at least two different predetermined angles of view and to obtain at least one still image of the user's face; and

~~storing means for storing user profile information relating to authorized users of a system; and~~

generating means connected to said at least one CCD camera and said light source, for generating a 3-dimensional model of the user's face using the at least two still images, and for generating a facial texture bit map of the user's face using the at least one still

image, said generating means comparing the 3-dimensional model and the facial texture bit map to the stored user profile information contained in said storing means, and for accessing to the system when the generated 3-dimensional model and facial texture bit map match a user profile stored in said storing means.

21. (Currently Amended) An apparatus, comprising:

recording means directed toward the user's face for recording at least two still image of the user from at least first and second angles of view and for recording at least on still image of the user's face; and

~~storing means for storing user profile information relating to authorized users of a system; and~~

processing means connected to said at least one camera for processing the still images obtained by said at least one camera and for generating a 3-dimensional model of a user's face and to generate a facial texture bit map of the user's face using the at least one still image of the user's face, and for comparing the generated model and the facial texture bit map with the stored user profile information for determining whether the user is authorized to access the system, said processing means further comprising

access granting means for granting access to the system when the generated model and the facial texture bit map matches the profile information of one of the authorized users stored in the storing means, thereby indicating recognition and authorization of the user, and

updating means for updating the profile information of the one of the authorized users with the generated model after each granting of access by said access granting means such that the updated profile information comprises an average of the generated model and the previously stored profile information.

22. (Currently Amended) An apparatus, comprising:

at least one camera configured to obtain at least two 2-dimensional still images of a user from at least two different angles of view;

a processor configured to generate a 3-dimensional model of the user's face from the obtained images to determine the user's facial shape using the generated 3-dimensional model, comparing the determined facial shape with profile information stored in memory, the profile information comprising data relating to the facial shape of authorized users, and determining whether the determined facial shape matches the profile information stored in the memory; and

a transmitter configured to send the images to a server over a network and to send the 3-dimensional model and the user's facial shape to the mobile apparatus.

23. (Currently Amended) An apparatus, comprising:

obtaining means for obtaining at least two 2-dimensional still images of a user from at least two different angles of view;

generating means for generating a 3-dimensional model of the user's face from the obtained images;

shape determining means for determining the user's facial shape using the generated 3-dimensional model;

comparing means for comparing the determined facial shape with profile information stored in memory, the profile information comprising data relating to the facial shape of authorized users; ~~and~~

match determining means for determining whether the determined facial shape matches the profile information stored in the memory; and

transmitting means for transmitting the images to a server over a network and for transmitting the 3-dimensional model and the user's facial shape to a mobile apparatus.

24. (New) A computer program embodied on a computer readable medium, said computer program configured to control a processor to perform:

obtaining, by a mobile apparatus, at least two 2-dimensional still images of a user from at least two different angles of view;

sending the images to a server over a network;

generating, by the server, a 3-dimensional model of a user's face from the obtained images;

determining, by the server, the user's facial shape using the generated 3-dimensional model;

sending the 3-dimensional model and the user's facial shape to the mobile apparatus;

comparing, at the mobile apparatus, the determined facial shape with profile information stored in memory, the profile information comprising data relating to the facial shape of authorized users; and

determining, at the mobile apparatus whether the determined facial shape matches the profile information stored in the memory.

25. (New) The method of claim 17, wherein said memory comprises at least one of RAM, ROM, EPROM and a magnetic storage media.

26. (New) The method of claim 17, further comprising:

determining an angle between said at least first and second angles of view to determine an orientation of said mobile apparatus.